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ABSTRACT

The Charleston County School District's efforts to increase the percentage of students meeting high school graduation requirements at the appropriate age and the percentage of students who graduate within 6 years of entry into grade 9 require a well-designed plan for monitoring their success. Evaluation of those efforts depends upon the use of several databases, including multiyear districtwide demographics information and suspension, dropout, and attendance reports. In order to meet the demands of processing the computer databases, changes, such as moving from a computer leasing service to district-owned system, were made in the district's computer processing capacity. (EJS)

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MERGING TRADITIONAL EVALUATION AND RESEARCH FUNCTIONS

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The reform efforts initiated in the Charleston County School District required a well-designed plan for monitoring the success of these efforts. The district's department of Evaluation and Research, in collaboration with researchers from the Johns Hopkins University and the University of Maryland, generated a multi-stage evaluation design based upon the goals of the overall reform effort as well as the objectives of the program components. The addition of this evaluation demand to the existing functions of the E&R Department required changes not only to departmental operations but also to data collection and maintenance procedures followed by the 70 schools in the district. To provide the full flavor of the redirection efforts, this paper has been organized into three sections. The first section presents the goals and objectives as set forth in the evaluation design. The second section addresses data collection needs and difficulties. The last section describes resolution efforts and future plans for streamlining the evaluation system while ensuring the accuracy of the data collected.

Goals and Objectives

Two goals were delineated for the intervention efforts. These are as follows:

1. To increase the percentage of students meeting CCSD, high school graduation requirements at the appropriate age.

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2. To increase the percentage of students meeting CCSD standards for high school graduation within six years of entry into grade 9.

Goal 1. Although an initial reading of the first goal leaves the impression that the calculation of the specified percentage would be fairly easy, upon closer inspection it was found that the necessary calculation was more difficult than it appeared. If district staff were able to simply identify, on an annual basis, the number of students who graduated "on time" for their age, there would not be a problem. However, percentages were necessary because of the fluctuating numbers of students enrolled in the district each year. Thus the percentage calculated was defined as the percentage of new first graders enrolled in the fall who graduate from high school by the end of the summer of their twelfth school year. (Note that this percentage includes seniors graduating after summer school as "on-time" graduates.) The denominator became the number of first graders who entered the system in the fall of year 19XX-12 (i.e., the current year minus 12), less the number of first graders who had repeated first grade. To generate the percentage, the numerator became the number of graduates in the spring/summer of year 19XX whose birth date indicated that they were on-time graduates.

One problem with the above method to generate percentages used to evaluate Goal 1 was that it did not correct for in- and out-migration of students. Thus a second method for generating the required percentages was developed to include in the numerator only those graduates who "matched" with a first grader in the denominator. Thus "Method B" excludes from the numerator stu-

dents who moved to the district after the fall of first grade. Although both methods tend to underestimate the on-time graduation rates to the extent that students move out of the system but graduate on-time elsewhere, the use of the same two methods for successive years should generate comparable data (assuming, of course, that the out-migration of students remains fairly stable over the years).

Goal 2. High school students are given a maximum of six years to graduate to allow them the flexibility of moving through their high school career at a slower pace. The intent of this goal is to meet the needs of students who may have other responsibilities (e.g., work, family) which keep them away from school. The calculation of percentages required that, for a specific cohort of eighth graders, the number of rising eighth graders who graduated in four, five or six years (spring or summer) be counted and then divided by the total number of rising eighth graders.

The five objectives derived from the goals are listed below:

1. To increase the percentage of all students meeting the CCSD promotion criteria at the appropriate age by a specific percentage in each school year.

2. To reduce instances of nonproductive student behavior that detract from learning.

3. To reduce the percentage of middle and high school students at risk of dropping out because of (a) they are absent due to conflicts with personal or family needs or (b) they report considering leaving school to get a job, care for a child, or meet other family demands.

4. To increase student reports of commitment to educational goals, attachment to school, and belief in conventional social rules.

5. To improve the experience and performance of teachers providing instruction in high-risk schools and providing instruction to high-risk students in all schools.

Data Collection

Evaluation of the goals and objectives depends upon the use of several databases. These include: (a) a multi-year district wide student database containing names of students, their birth dates, grade levels, other demographic data and students' graduation status and (b) suspension, dropout, and attendance reports. Other evaluation instruments include surveys, ratings and other measures.

The implementation of a multitude of research projects in a system which was designed to support traditional evaluation efforts presented a challenging task. It was necessary to collect data from a variety of schools, ranging over many square miles, using existing resources. The schools had no clear standardization of their individual computerized student databases and Charleston County School District had only a rudimentary centralized master file. Information regarding graduates, dropouts, expulsions and other factors necessary to adequately assess student progress was not contained in the centralized student file. This information had to be entered by hand and collected centrally, where it was placed in a separate computer file. Other information regarding program participation was bubbled on standardized test answer documents which were scanned and put into computer readable form. In a school system of approximately 44,000 students, a unified student ID system should make merging

these files from a variety of sources a simple and effortless task.

Unfortunately, this was not the case. The clerks who were responsible for maintaining the individual school databases saw no clear purpose in the accuracy of these numbers. As a result, they became very creative in assigning numbers in this field which were clearly of questionable origin. First and last names and birth dates became the fields to investigate. The relationship between these files, combined with student ID's and student demographics, finally allowed for the completed relational database to be created.

Resolution Efforts

In order to meet the demands of processing the computer databases, the existing computing system in the Department of Evaluation and Research clearly needed to be reorganized. The system consisted of several free standing PC compatibles of varying speeds and storage capacity. There were also funds for outside computer leasing services that were to remain fixed, although estimates showed that use would increase approximately 75%. The first step was to specialize function according to need. The PC IBM compatible computers consisted of two 80286 computers and three 8088 IBM PC's. The statistical analysis software, SAS, was used both for the PC's and the leased computer service. In order to conduct the required analyses, it became necessary to perform more calculations on the "in-house" computing system. This allowed the transfer of funds from the computer leased service into equipment purchases.

The 80286 computers were assigned the task of data analysis while the 8088 computers were relegated to word processing and printing. Networking was nonexistent. However, the computers were placed in a close circle which allowed for relatively convenient access to all computers. Analyses requiring the least amount of processing of records were transferred from the computer leasing service to the 80286 computers, which were placed in use for data analysis almost constantly during working hours.

Policy and the ungrounded, outdated electrical system dictated that the computers not be left running unattended overnight. Programming techniques needed to be altered to conform to the PC operating environment. Analyses that were previously performed on 44,000 students at a time had to be broken down into separate analyses by grade. Programs that were written to provide final analyses had to be preceded by programs that would detect errors in the databases. Macro variables were used whenever possible to decrease reediting time for quarterly reports. Performance and time trials were conduced whenever possible to determine the programming structure that was the most efficient. The popular shareware program PKZIP was employed whenever possible to allow for the maximum utilization of existing disk space.

The savings incurred by less reliance on the computer leasing service allowed for the purchase of 386 Intel Inboards which were placed in two of the 8088 computers. These computers then became the mainstay of data analysis with the 80286 computers relegated to less time consuming analyses. The process of maxi-

mum use of existing resources made the purchase of a 20 Mhz. 386 computer possible from funds no longer required for the computer leasing service. The larger disk space (160 Mb) permitted the analysis of much larger databases and also released more funds for computer purchases. The final step of this process allowed for the purchase of a 27.5 MIS UNIX system which accommodated the analysis of traditional departmental requirements and future research projects.

Departmental personnel was another resource that was to remain fixed while processing demands increased. It became necessary to add to the demand of existing "in house" computing tasks that were previously assigned to other staff. Forms that were typed by hand and calculations that were computed by pocket calculator were incorporated into computer programs. Lists that were generated for error checking purposes were reduced by programming statements. This allowed secretarial staff time to write repetitious programming statements that were incorporated into computer programs necessary to analyze the increased amount of data to be received.

These changes in data collection, computer processing capacity and personnel thus set the stage for the increased demands placed upon the Department given the aforementioned reform efforts. Future plans include a wide area network which will compare information obtained from the schools with previously obtained student information. It is hoped that this system will detect changes in student information and alert school personnel of any incongruities.